

THE JOURNAL OF GENERAL MICROBIOLOGY

EDITED FOR
THE SOCIETY FOR GENERAL MICROBIOLOGY

Editors

J. R. POSTGATE
E. A. DAWES S. W. GLOVER M. F. MADELIN

Editorial Board

J. R. BAKER
B. A. BRIDGES
R. J. W. BYRDE
M. J. CARLILE
S. T. COWAN
T. CROSS
P. J. DART
N. DATTA
T. H. FLEWETT
J. L. GAY
G. W. GOODAY
N. G. HEATLEY

M. S. HENDRIE
M. T. HEYDEMAN
P. N. HOBSON
S. P. LAPAGE
J. W. LIGHTBOWN
P. MEADOW
E. O. MORRIS
I. MORRIS
J. G. MORRIS
M. O. MOSS
J. A. PATEMAN
J. H. PEARCE
C. RATLEDGE

M. H. RICHMOND
C. F. ROBERTS
A. H. ROSE
J. G. SCAIFE
D. A. SMITH
R. E. STRANGE
I. W. SUTHERLAND
D. W. TEMPEST
A. P. J. TRINCI
P. J. WHITE
R. WHITTENBURY
K. S. ZINNEMANN

VOLUME 70, 1972

CAMBRIDGE
AT THE UNIVERSITY PRESS
1972

PUBLISHED BY THE CAMBRIDGE UNIVERSITY PRESS

Bentley House, 200 Euston Road, London N.W.1 2DB

American Branch: 32 East 57th Street, New York, N.Y. 10022

© Society for General Microbiology, 1972

Printed in Great Britain at the University Printing House, Cambridge

Contents

Part 1 issued March 1972

	PAGE
Obituary. Paul Fildes 1882-1971	I
Release of Wall-bound Invertase and Trehalase in <i>Neurospora crassa</i> by Hydrolytic Enzymes. By P. L. Y. CHANG AND J. R. TREVITHICK	13
Distribution of Wall-bound Invertase during the Asexual Life-cycle of <i>Neurospora crassa</i> . By P. L. Y. CHANG AND J. R. TREVITHICK	23
Wall and Plasma Membrane Structures of <i>Hydrogenomonas eutropha</i> as Revealed by Stereography of Replicas from Complementary Freeze-etched Surfaces. By B. J. VELTRI AND J. H. MCALLEAR	31
Growth Characteristics of a Species of <i>Lipomyces</i> and its Degradation of Paraquat. By J. R. ANDERSON AND E. A. DREW	43
Genetic Analysis of <i>fla</i> and <i>mot</i> Cistrons Closely Linked to <i>H1</i> in <i>Salmonella abortusequi</i> and its Derivatives. By S. YAMAGUCHI, T. IINO, T. HORIGUCHI AND K. OHTA	59
Transductional Analysis of Cysteine Mutants in <i>Proteus mirabilis</i> . By W. O. K. GRABOW	77
The Occurrence of Bactoprenol in the Mesosome and Plasma Membranes of <i>Lactobacillus casei</i> and <i>Lactobacillus plantarum</i> . By K. J. I. THORNE AND D. C. BARKER	87
Synchronous Growth of Cells and the Generation Time Distribution. By J. D. HARVEY	99
Parameters of the Generation Time Distribution of <i>Escherichia coli</i> B/r. By J. D. HARVEY	109
On Substrate-accelerated Death in <i>Klebsiella aerogenes</i> . By P. H. CALCOTT AND J. R. POSTGATE	115
Expression of the <i>Escherichia coli</i> K, B and Phage P1 DNA Host Specificities in <i>Salmonella typhimurium</i> . By A. M. COLSON AND C. COLSON	123
The General Properties of a Strain of Yeast with Less DNA than Normal. By E. M. PARRY AND B. S. COX	129
Production and Some Properties of Rennin-like Milk-clotting Enzyme from <i>Penicillium citrinum</i> . By A. F. ABDEL-FATTAH, S. S. MABROUK AND N. M. EL-HAWWARY	151

SHORT COMMUNICATION

The Effect of Supraoptimal Temperatures on the Fine Structure of <i>Merulius lacrymans</i> (Jacq.) Fr. By F. LANGVAD	157
--	-----

Part 2 issued April 1972

	PAGE
The Structure and Acetylene-reducing Activity of Root Nodules Formed by a Riboflavin-requiring Mutant of <i>Rhizobium trifolii</i> . By C. E. PANKHURST, E. A. SCHWINGHAMER AND F. J. BERGERSEN	161
Uncoupling in Bacterial Growth: Effect of Pantothenate Starvation on Growth of <i>Zymomonas mobilis</i> . By J. P. BELAICH, A. BELAICH AND P. SIMONPIETRI	179
Uncoupling in Bacterial Growth: ATP Pool Variation in <i>Zymomonas mobilis</i> Cells in Relation to Different Uncoupling Conditions of Growth. By A. LAZDUNSKI AND J. P. BELAICH	187
Influence of Light and Phosphate on Toxin Production and Growth of <i>Prymnesium parvum</i> . By Z. DAFNI, S. ULITZUR AND M. SHILO	199
A Simple Chemical Method to Differentiate <i>Mycobacterium</i> from <i>Nocardia</i> . By F. KANETSUNA AND A. BARTOLI	209
The Isolation and Characterization of Mutant Strains of the Blue-green Alga <i>Anacystis nidulans</i> . By M. HERDMAN AND N. G. CARR	213
Effects of Coumarin, Pyronin Y, 6,9-Dimethyl 2-Methylthiopurine and Caffeine on Excision Repair and Recombination Repair in <i>Escherichia coli</i> . By G. W. GRIGG	221
The Nature of Carbenicillin Resistance in <i>Pseudomonas aeruginosa</i> . By A. H. THOMAS AND R. A. BROADBRIDGE	231
The Production of Penicillins in Soils and Seeds by <i>Penicillium chrysogenum</i> and the Role of Penicillin β -Lactamase in the Ecology of Soil Bacillus. By P. HILL	243
The Germination of Spores of <i>Clostridium tetani</i> . By J. G. SHOESMITH AND K. T. HOLLAND	253
Scanning Electron Microscopy of <i>Staphylococcus aureus</i> Exposed to Some Common Anti-staphylococcal Agents. By D. GREENWOOD AND F. O'GRADY	263
On the Role of Menaquinone in the Reduced Nicotinamide Adenine Dinucleotide Oxidative Pathway of <i>Bacillus brevis</i> . By G. H. FYNN, D. V. THOMAS AND B. SEDDON	271
Nitrogen Assimilation by <i>Bacillus licheniformis</i> Organisms Growing in Chemostat Cultures. By J. L. MEERS AND L. K. PEDERSEN	277
Amino Acid Substitution in an Amidase Produced by an Acetanilide-utilizing Mutant of <i>Pseudomonas aeruginosa</i> . By P. R. BROWN AND P. H. CLARKE	287
Possession of Flagellar Hooks by Some Non-flagellate Mutants of <i>Salmonella abortusequi</i> . By S. YAMAGUCHI, T. IINO AND T. KUROIWA	299
Ultrastructure of <i>Mycoplasma orale</i> Serotype I in Agar Growth. By M. NAKAMURA AND M. KAWAGUCHI	305
Collagenolytic Activity of Aerobic Halophiles from Hides. By J. A. THOMSON, D. R. WOODS AND R. L. WELTON	315
The Culture of the Rumen Organism Eadie's Oval <i>in vitro</i> . By C. G. ORPIN	321
The Exopolysaccharides of Klebsiella Serotype 2 Strains as Substrates for Phage-induced Polysaccharide Depolymerases. By I. W. SUTHERLAND	331

Contents

	PAGE
Physiological, Chemical and Ultrastructural Characteristics of <i>Corynebacterium rubrum</i> . By J. A. SERRANO, R. V. TABLANTE, A. A. DE SERRANO, G. C. DE SAN BLAS AND T. IMAEDA	339
ATP Pool and Growth Yield in <i>Selenomonas ruminantium</i> . By P. N. HOBSON AND R. SUMMERS	351
Abortive Transduction of Motility in <i>Proteus</i> and <i>Providencia</i> Strains. By P. C. APPELBAUM, P. F. TRICHARDT, K. KRIZSANOVICH, J. N. COETZEE AND N. HUGO	361
Amino Sugars in the Wall of <i>Pseudomonas fluorescens</i> . By S. G. WILKINSON	365
The Antigen of <i>Bordetella pertussis</i> that Induces Bactericidal Antibody and its Relationship to Protection of Mice. By J. P. ACKERS AND J. M. DOLBY	371

SHORT COMMUNICATIONS

Pyrrolidonyl Peptidase Activity: a Simple Test for Differentiating Staphylococci. By M. MULCZYK AND A. SZEWCZUK	353
Rapid Localization of Bacterial Surface Antigens by Whole-mount Immunoperoxidase Technique. By J. C. COX, E. PIHL, R. S. D. READ AND R. C. NAIRN	385
The Role of Mycoplasma Membrane Proteins in the Adsorption of Animal Cells to <i>Mycoplasma hominis</i> Colonies. By M. R. HOLLINGDALE AND R. J. MANCHEE	391
Electrophoretic and Chromatographic Differences between Aspartate Amino-transferases from <i>Rhizobium</i> . By E. RYAN AND P. F. FOTTELL	395

Part 3 issued May 1972

Isolation and Some Properties of Temperature-sensitive Mutants of <i>Micrococcus radiodurans</i> Defective in DNA Synthesis. By B. E. B. MOSELEY, A. MATTINGLY AND M. SHIMMIN	399
The Type b Capsulation Locus of <i>Haemophilus influenzae</i> : Map Location and Size. By B. W. CATLIN, J. W. BENDLER, III AND S. H. GOODGAL	411
Absence of Laccase from Yellow-spored Mutants of <i>Aspergillus nidulans</i> . By A. J. CLUTTERBUCK	423
The Microbial Flora of the Gut of the Pouch-young and the Pouch of a Marsupial, <i>Setonix brachyurus</i> . By M. YADAV, N. F. STANLEY AND H. WARING	437
Two Modes of 'Curing' Transmissible Bacterial Plasmids. By V. SALISBURY, R. W. HEDGES AND N. DATTA	443
Host Ranges of R Factors. By N. DATTA AND R. W. HEDGES	453
The Relationship between Filaments, Killing and Restoration in Irradiated <i>Escherichia coli</i> Strain B. By D. BROWN AND N. E. GILLIES	461
Methionine Regulatory Defects in <i>Salmonella typhimurium</i> Arising from Amber-suppressible Mutations. By A. C. MINSON AND D. A. SMITH	471
Ultrastructural Development of Stalk-producing Cells in <i>Dictyostelium discoideum</i> , a Cellular Slime Mould. By R. P. GEORGE, H. R. HOHL AND K. B. RAPER	477
Effect of Long-chain Fatty Acids on Some Trypanosomatid Flagellates. By L. V. CUNNINGHAM, B. H. KAZAN AND S. S. KUWAHARA	491

Contents

	PAGE
Water Relations of <i>Salmonella oranienburg</i> : Accumulation of Potassium and Amino Acids during Respiration. By J. H. B. CHRISTIAN AND J. M. HALL	497
A Mutant of <i>Escherichia coli</i> with a Defect in Energy Metabolism. By G. TURNOCK, S. K. ERICKSON, B. A. C. ACKRELL AND B. BIRCH	507
Isolation and Taxonomic Significance of Bacteriophages for Non-proteolytic <i>Clostridium botulinum</i> . By H. SUGIYAMA AND G. J. KING	517
Non-smooth Mutants of <i>Salmonella typhimurium</i> : Differentiation by Phage Sensitivity and Genetic Mapping. By R. G. WILKINSON, P. GEMSKI, JUN. AND B. A. D. STOCKER	527
Physiology of a New Facultatively Autotrophic Thermophilic Thiobacillus. By R. A. D. WILLIAMS AND THE LATE D. S. HOARE	555

SHORT COMMUNICATIONS

The Accumulation of 'Run-off' Ribosomes during Treatment of <i>Escherichia coli</i> with Dihydrostreptomycin <i>in vivo</i> . By M. KOGUT AND E. PRIZANT	567
Cell-wall Defective Variant of <i>Nocardia rubra</i> . By I. PRASAD AND S. G. BRADLEY	571
Books Received	573